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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,616	10/18/2006	Raoul Florent	FR 030105	7655
24737 7590 07/09/2008 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
BITAR, NANCY				
ART UNIT		PAPER NUMBER		
2624				
NOTIFICATION DATE		DELIVERY MODE		
07/09/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

# Office Action Summary

**Application No.**

10/572,616

**Applicant(s)**

FLORENT ET AL.

**Examiner**

NANCY BITAR

**Art Unit**

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 April 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 03 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/CD-100)  
4) ☐ Interview Summary (PTO-413)  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_  
Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, in the amendment filed 04/03/2008, with respect to the rejections of claims 1-3,5-9 under 35 U.S.C. 102(b) and claim 4 under 103 (a) have been fully considered but are moot in view of the new ground(s) of rejection necessitated by the amendments. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Griessl et al (US 6,370,196).

### ***Claim Objections***

2. Claims 15-20 are objected to because of the following informalities: Claims 15-20 teaches the storage medium of claim 7 whereas claim 7 teaches a *computer readable storage* medium. Examiner suggests amending the claim to include a *computer-readable* storage medium. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1-5 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a plurality of structural elements performing the claimed functions, does not reasonably provide enablement for a single structural element performing all of the claimed functions. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims ("A single means claim, i.e., where a means recitation does not appear

in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph” because a single means claim covers “every conceivable means for achieving the stated purpose” and “the specification disclosed at most only those means known to the inventor” - *MPEP, at paragraph 2164.08(a)*). This is a “single-means” type rejection which could be overcome by adding sufficient structure, commensurate with the corresponding disclosure, to the body of the claim. Claims 2-5 do not add any additional structural elements so they are also single means claims

#### **Examiner Notes**

4. Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:  
  
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 5-8, 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zlokolic ET al (Video denoising using multiple class averaging with multiresolution) in view of Griessl et al ( US 6,370,196)

As to claim 1, Vladimir Zlokolic et al. teaches an image processing system for reduction of the noise and enhancement of edges in images of a sequence, comprising a controller: decomposition of spatial image signal yielding slices of different content, the decomposition being based on pyramidal decomposition( The wavelet transform compresses essential information in an image into relatively few large coefficients, that correspond to the main image details at different resolution scales, note that one level in the decomposition have been used for the sake of simplicity and time cost, page 5, section 3); temporally filter one or more of the slices for differently filtering the slices according to the content wherein one or more high frequency slices are filtered at a greater rate than one or more low frequency slices and (spatio-temporal recursive filter, based on multiple threshold filtering, see section 2 and section 3 equation (7) and figure 2); recompose the images of the sequence from at least the temporally filtered slices (after all four bands HH,HL,LH and LL have been processed, an inverse wavelet transform is done which produces the output sequence, page 6, section 3). While Vladimir Zlokolic meets a number of the limitations of the claimed invention, as pointed out more fully above, Vladimir Zlokolic fails to specifically teach the differently filtering the slices according to the content wherein one or more high frequency slices are filtered at a greater rate than one or more low frequency slices. Specifically, Griessl et al. teaches the in figure 1 It is a hierarchical motion estimation system (100) with different resolution levels, i.e. a Gaussian pyramid (Burt and Adelson). A pyramidal approach is chosen for the

common reasons wherein in low frequency areas the convergence time of motion estimation methods increases. On the other hand in such areas the motion estimation can be done on coarser resolutions levels. Hence a pyramidal approach leads to higher computational efficiency. Moreover, Griessl teaches the control module 101 and reduce modules 102 and 103 that are applied at a typical reduce operation of a Gaussian pyramid (Burt and Adelson) on all input data of the pyramid with respect to their shape information. The different types of fields may be treated differently. In order to avoid aliasing, the data are low pass filtered and sub-sampled. The motion field amplitudes are divided by 2 in order to scale the change of address according to the new resolution. It would have been obvious to one of ordinary skill in the art to use the reduce module 102 and 103 in Vladimir Zlokolica filtering process in order to achieve a gain in quality and reduce complexity, memory amount and computation time. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claim 2, Vladimir Zlokolica et al. in view of Griessl et al, teach the system of claim 1 pyramidal decomposition is one of laplacian or Gaussian (wavelet decomposition, page 6, figure 2, see also Griessel et al (column 5, lines 50-55)).

As to claim 3, 13, and 18, Vladimir Zlokolica et al. in view of Griessl et al, teach the system of claim 1 wherein the temporal filtering comprises adaptive filtering (motion compensation, page 2, second paragraph, note that the wavelet transform [12] naturally facilitates spatially adaptive algorithms, section 2).

As to claim 5, Vladimir Zlokolica et al. in view of Griessl et al, teach the system of claim 1 wherein the temporal filtering comprises recursive adaptive filtering (A time recursive spatio-temporal filter has been presented in this paper, see section 2 and section 5).

As to claim 6, 14, and 19, Vladimir Zlokolica et al. in view of Griessl et al teaches the system of claim 1, further comprising a display device for displaying the images of the sequence ( video sequence, see section 1-2).

Claim 7 differ from claim 1 only in that claim 1 is a system claim whereas; claim 7 is a computer claim. Thus, claim 7 is analyzed as previously discussed with respect to claim 1 above.

Claim 8 differ from claim 1 only in that claim 1 is a system claim whereas; claim 8 is a method claim. Thus, claim 8 is analyzed as previously discussed with respect to claim 1 above.

As to claim 10, and 15, Vladimir Zlokolica et al. in view of Griessl et al, teaches applying laplacian pyramid decomposition to perform the decomposition of the spatial image signal (section 3, page 5)

As to claim 11 and 16, Vladimir Zlokolica et al. in view of Griessl et al, teaches applying Gaussian pyramid decomposition to perform the decomposition of the spatial image signal (wavelet decomposition, page 6, figure 2, see also Griessel et al (column 5, lines 50-55))

As to claims 12 and 17, Vladimir Zlokolica et al. in view of Griessl et al, teaches applying adaptive temporal recursive filtering to perform the temporal filtering of at least a portion of the slices ( adaptive filtering, 800, column 17, lines 45, column 18, lines 1-40).

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
7. Claims 4, 9 and 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zlokolic et al in view of Griessl et al ( US 6,370,196) further in view of Brailean et al( Noise Reduction: Filters for Dynamic Image sequence: A Review) .

While Zlokolic and Griessl meets a number of the limitations of the claimed invention, as pointed out more fully above, Zlokolic fails to specifically teach the temporal filtering comprises motion compensation. Specifically, Brailean et al. teaches the motion compensated spatiotemporal filtering where the addition of motion compensation to a non motion compensated filter does result in a new filter which helps the temporal correlation. It would have been obvious to one of ordinary skill in the art to include the motion compensation of Brailean in Zlokolic temporal filtering in order to allow for the support of the filter to be increased in the temporal direction improving the filter's ability to suppress noise without incurring additional artifacts due to motion(see section B: Motion Compensated Spatiotemporal )

Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant



***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through

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Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew W. Johns/  
Primary Examiner, Art Unit 2624

Nancy Bitar

07/03/2008